Datasheet | **S7500-24GE4TF-L3M**
Gigabit Smart Network Switches with 10G SFP+ Uplink

Experience the New Generation of Gigabit Smart Switches.
Select your new network engine!

The BENCHU GROUP new generation of Gigabit Smart switches offers new, powerful L2+/Layer 3 Lite features with enhanced performance and usability. They are purposely designed for the future where increased traffic and application-oriented tasks demands more intelligence at the edge, higher realiability and improved network efficiency on top of operational cost savings and ease of management.
The S7500-24GE4TF-L3M Layer3 Managed Switches provides forty-eight 10/100/1000M RJ45 Ports and four 1G/2.5G/10G SFP+ Ports.

Support 4 Ports 1G/2.5G/10G SFP+ Uplink, provides greater bandwidth and powerful processing capacity. It offers a maximum 40Gbps uplink bandwidth through the Four 10Gbps SFP+ ports. In addition, the administrator can flexibly choose the suitable (1.25G/2.5G/10G) SFP/SFP+ transceiver according to the transmission distance or the transmission speed required to extend the network efficiently.

This new generation of Gigabit Smart switch from BENCHU GROUP is the optimized solution providing the best value at an affordable SMB price point.

Highlights

Designed for Converged Network, Big or Small

- Gigabit speed with non-blocking architecture supporting 100% Gigabit throughput
- Auto Voice VLAN for fast and reliable deployment of VoIP
- Auto Video VLAN, following the same concept of Auto Voice, help speed up your deployment of IP-based surveillance system
- Static routing, helps to route internal traffic for more efficient use of network resources
- IGMP and MLD snooping, providing advanced multicast filtering

Build a Future-proof Network with BENCHU

- Solid performance with non- blocking architecture, 16K MAC addresses, 256 VLANs, 100 shared ACL entries, 100 static routes, and 512 Multicast Groups
- Comprehensive IPv6 supporting management, QoS and ACL, ensuring investment protection and a smooth migration to IPv6-based network
- Dedicated SFPs instead of combo ports, offering more connectivity ports and providing better value and usability at no extra cost
- Energy Efficient Ethernet (IEEE802.3az) support for more energy saving in the future when more IEEE-compliant end devices come to marketresources
- Advanced QoS with IPv4/IPv6 traffic filtering and prioritization
- Dynamic VLAN assignment for easy user authentication and location-independent access to network
- Multicast VLAN Registration for eliminating unnecessary multicast traffic and improve the efficiency of network utilization

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Key features include:

- Layer 3 static routing (IPv4 and IPv6) for interVLAN local routing
- Layer 3 routing,RIP v1/V2 ,OSPF V1/V2 ,VRRP
- IPv4 / IPv6 Dual stack and switch virtual interfaces (SVIs)
- Advanced VLAN and Private VLAN support for better network segmentation
- L2/L3/L4 access control lists (ACLs) for granular network access control including 802.1x port authentication
- Advanced QoS (Quality of Service) for traffic prioritization including port-based, 802.1p and L2/L3/L4 DSCP-based
- Auto “denial-of-service” (DoS) prevention
- IGMP Snooping and Querier for multicast optimization
- Dynamic ARP for increased security targeting a class of Man in the Middle attack
- Rate limiting and priority queuing for better bandwidth allocation
- Port mirroring for network monitoring
- Energy Efficient Ethernet (IEEE 802.3az) for maximum power savings
- SNMP v1, v2c and RMON remote monitoring

Build a future-proof network with BENCHU:

- Solid performance with non-blocking architecture, 16K MAC addresses, 100 shared (ingress) ACLs and 512 Multicast groups
- Comprehensive IPv6 supporting management, QoS, ACL and routing, ensuring investment protection and a smooth migration to IPv6-based network
- 4 Dedicated SFP+s, not only providing fiber uplinks, but also uplink redundancy and failover, improving reliability and availability for the network

Fast Access

- The remote units provide the full line-speed forwarding capability. All ports support non-blocking data packet forwarding, providing users with high-speed access experience and meeting the requirements of high-bandwidth services such as HD video conferencing, online video, and large file download.

BENCHU Quality and Reliability

- Low power consumption, with 2 fans, high-strength metal casing..
- Contact Discharge 8KV DC； Air Discharge 15KV DC
- -20 to 50 degrees operating temperature
- CE, FCC, RoHS,CB.
- The user-friendly panel can show the device status through the LED indicator of PWR, Link.

Easy operation and maintenance management

- Web management, CLI command line (Console, Telnet), SNMP (V1/V2).
- HTTPS and SSHV1/V2.
- RMON, system log, LLDP, and port traffic statistics.
- CPU monitoring, memory monitoring, Ping test, and cable diagnose.

Hardware at a Glance

FRONT			**REAR**		**SIDE**
Model Name	10/100/1000Base-T RJ45 ports	1G/2.5G/10GBASE-X Fiber SFP+ Ports	Power Budget	Power Supply	Fans
S7500-24GE4TF-L3M	24	4	72W	1 internal PSU, fixed	Fanless

Software at a Glance

LAYER 2+ / LAYER 3 LITE FEATURES							
Management	IPv4/IPv6 ACL and QoS	IPv4/IPv6 Multicast Filtering	G.8032 ERPS STP/RSTP/MSTP	IEEE (802.3az) Energy Efficient Ethernet	VLANs	Convergence	IPv4 & IPv6 Static Routing RIP/OSPF/VRRP
Web Browser-based GUI(HTTP/HTTPS), PC-Based Smart Control Center Utility (SCC) , RMON, SNMP	L2, L3, L4, ingress	IGMP and MLD Snooping	Yes	Yes	Static Dynamic, Voice, MAC, Protocol-based	LLDP-MED, RADIUS, 802.1X	Yes

Performance at a Glance

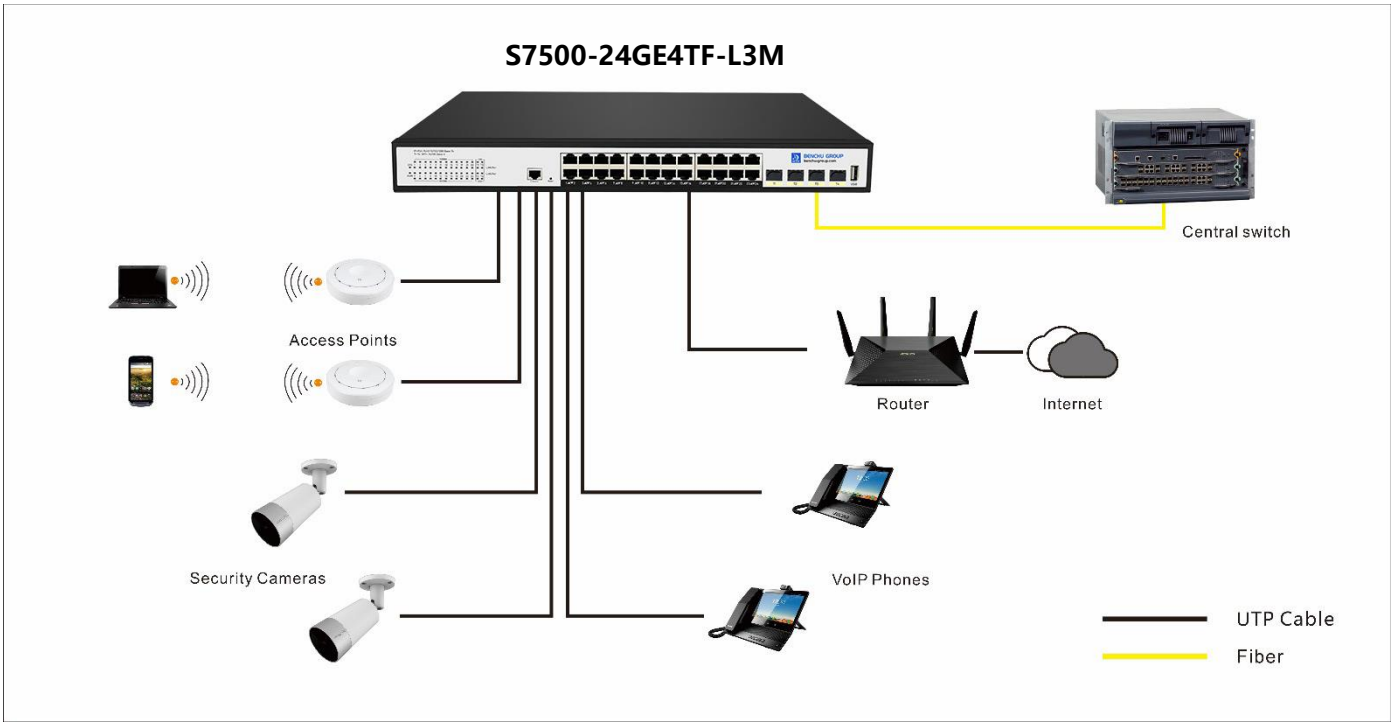
Model Name	Packet buffer	CPU	ACLs	MAC Address Table ARP Table VLANs	Fabric	Latency (Max Connection Speed)	Static Routes (IPv4 & IPv6)	Multicast IGMP Group
S7500-24GE4TF-L3M	12MB	Dual-Core 1GHz MIPS InterAptive CPU subsystem 1GB DDR RAM	100 shared	16K MAC 1024 ARP 4K VLANs QinQ	256Gbps 96Mpps line-rate	1G Copper: <3.35μs 10G Fiber: <2.5μs	IPv4: 256 IPv6: 256	512

Features and Benefits

Hardware Features	
1000BASE-T Copper Ethernet connections	Support high-density VoIP, Surveillance and Wi-Fi AP deployments, scal-able for future growth.
1G/2.5G/10GBASE-X Fiber SFP+ ports	Four dedicated 1G/2.5G/10G SFP+ ports for aggregation to the network core. Support for Fiber and Copper modules. Can also build dual redundancy by a trunked uplink with link aggregation.
Fanless Design	Quiet operation makes these switches ideal solution for business environ-ments which favor no noise from networking gears such as libraries, class rooms, offices and etc.
Energy Efficient Ethernet (IEEE 802.3az)	Maximum power reduction for onging operational cost savings.
Software Features	
Comprehensive IPv6 Support for Management, ACL and QoS	Build current network with future in mind. Ensure investment protection and a smooth migration to an IPv6-based network without switch replacement.
IPv4 & IPv6 Static Routing	A simple way to provide segmentation of the network with internal routing through the switch – reserving the router for external traffic routing only, making the entire network more efficient.
Robust security features: • 802.1x authentication (EAP) • Port-based security by locked MAC • ACL filtering to permit or deny traffic based on MAC and IP addresses	Build a secured, converged network with all types of traffic by preventing external attacks and blocking malware while allowing secure access for authorized users.
Comprehensive QoS features: • Port-based or 802.1p-based prioritization • Layer 3-based (DSCP) prioritization • Port-based ingress and egress rate limiting	Advanced controls for optimized network performance and better delivery of mission-critical traffic such as voice and video.
IGMP (IPv4) and MLD (IPv6) Snooping and Querier modes with Fast Leave	Facilitate fast receiver joins and leaves for multicast streams. Save cost and improve network efficiency by ensuring multicast traffic only reaches desig-nated receivers without the need of an extra multicast router.
Protected Ports	Ensure no exchange of unicast, broadcast, or multicast traffic between the protected ports on the switch, thereby improving the security of your converged network. This allows your sensitive phone conversations to stay private and your surveillance video clips can be forwarded to their designated storage device without leakage or alteration.
DHCP Snooping and Dynamic ARP Inspection	Ensure IP address allocation integrity by only allowing DHCP messages from trusted DHCP servers and dropping malformed DHCP messages with a port or MAC address mismatch. Use the DHCP snooping bindings database per port and per VLAN to drop incoming packets that do not match any binding and to enforce source IP/MAC addresses for malicious users traffic elimination.
Dynamic VLAN Assignment (RADIUS)	IP phones and PCs can authenticate on the same port but under different VLAN assignment policies. Users are free to move around and enjoy the same level of network access regardless of their physical location on the network.

Target Application

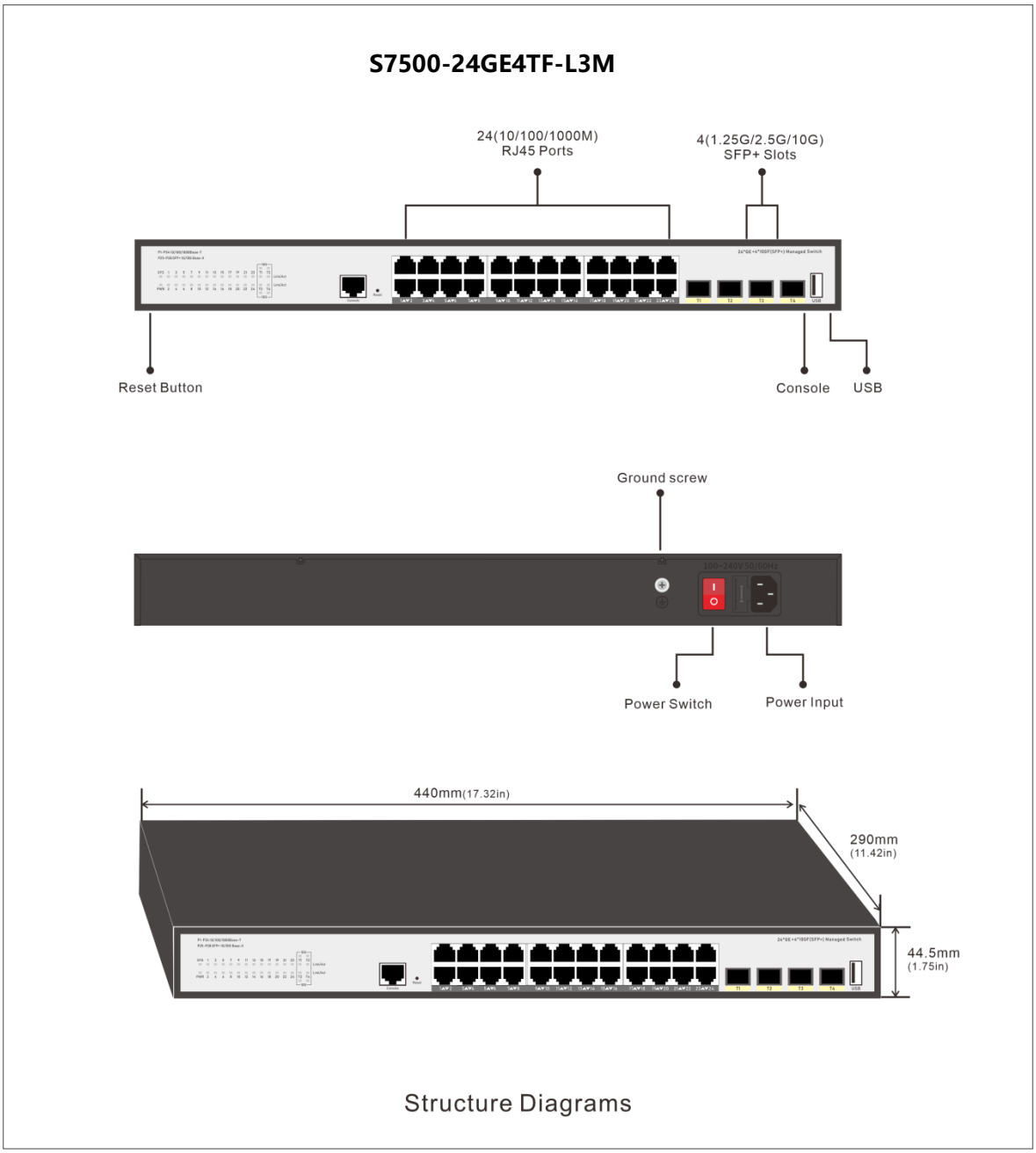
Network Convergence



Why the BENCHU GROUP 24 Ports Switches are ideal for SMB?

1. Easy-to-use Web browser-based management GUI — No need for an IT expert
2. Expand your network instantly, and give your devices either 100Mb, 1G, 2.5G or 10-Gigabit
3. Silent desktop or rackmount form factor for quiet operation – Adapts to your needs and configuration in any environment
4. High cost-effectiveness, protecting user investment
5. Energy efficient switches that automatically adjust power consumption according to the link status and cable length.
6. Limited Lifetime* Warranty, Tech support

Structure Diagrams



Structure Diagrams

Technical Specifications	**S7500-24GE4TF-L3M**
10M/100M/1G RJ-45 copper ports	24
1G/2.5G/10G SFP+ (fiber) ports	4 (dedicated)
Console Port (For config)	Yes
USB port (for config file upload/backup & firm-ware updates)	Yes
Performance Specification	
CPU	Dual-Core 1GHz MIPS InterAptive CPU subsystem
Packet buffer memory (Dynamically shared across only used ports)	12 MB
Forwarding modes	Store-and-forward
Bandwidth	256 Gbps
Priority queues	8
MAC address database size (48-bit MAC ad-dresses)	16K
Multicast groups	1K
Number of IPv4 static routes	256
Number of IPv6 static routes	256
Number of VLANs	4094
Number of VLANs(Open QinQ)	16,760,836(4094*4094)
Number of ARP cache entries	1024 ARP
Number of DHCP snooping bindings	512
Access Control Lists (ACLs)	100 shared for MAC, IP and IPv6 ACLs (ingress)
Packet forwarding rate (64 byte packet size) (Mpps)	131
Jumbo frame support (bytes)	Up to 12K packet size
Mean Time Between Failures (MTBF) @ 25°C	117,549 hours
100M Copper Latency (64-byte; 1518-byte; 9216-byte frames)	8.314μs; 8.412μs; 8.451μs
1G Copper Latency (64-byte; 1518-byte; 9216-byte frames)	3.514μs; 3.545μs; 3.628μs
1G Fiber Latency (64-byte; 1518-byte; 9216-byte frames)	2.980μs; 3.101μs; 3.179μs
10G Fiber Latency (64-byte; 1518-byte; 9216-byte frames)	2.330μs; 2.561μs; 2.7129μs

L2 Services - VLANs	**S7500-24GE4TF-L3M**
IEEE 802.1Q VLAN tagging	Yes
QinQ VLAN tagging	Yes
IP-based VLANs	Yes
MAC-based VLANs	Yes
Protocol-based VLAN	Yes
Voice VLAN	Yes
VLAN mapping	Yes
L2 Services - Availability	
Broadcast, multicast, unknown unicast storm control	Yes
IEEE 802.3ad - LAGs (LACP)	Yes
IEEE 802.3x (full duplex and flow control)	Yes
IEEE 802.1D Spanning Tree Protocol	Yes
IEEE 802.1w Rapid Spanning Tree Protocol	Yes
IEEE 802.1s Multiple Spanning Tree Protocol	Yes
Layer 2 DHCP Relay	Yes
L2 Services - Multicast Filtering	
IGMP snooping (v1, v2 and v3)	Yes
MLD snooping support (v1 and v2)	Yes
IGMP snooping querier (v2)	Yes
MLD snooping querier (v1)	Yes
Multicast VLAN Registration (MVR)	Yes
L3 Services - DHCP	
DHCP client	Yes
DHCP snooping	Yes
DHCP Server	Yes
L3 Services - Routing	
IPv4 static routing	Yes
IPv6 static routing	Yes
VLAN routing	Yes
RIP V1/V2	Yes
OSPF V2	Yes
Number of IP VLAN interfaces(routed VLANs)	16
Policy routing	Yes
VRRP	Yes

Link Aggregation	**S7500-24GE4TF-L3M**
IEEE 802.3ad - LAGs (LACP)	Yes
Manual LAG	Yes
# of LAGs / # of members in each LAG	8 LAGs with max 8 members in each LAG
Network Monitoring and Discovery Services	
802.1ab LLDP	Yes
SNMP	v1, v2c, v3
RMON group 1,2,3,9	Yes
Network Security	
IEEE 802.1x	Yes
RADIUS accounting	Yes
Access Control Lists (ACLs)	Yes
IP-based ACLs (IPv4 and IPv6)	L2 / L3 / L4
MAC-based ACLs	Yes
TCP/UDP-based ACLs	Yes
Control MAC # static entries	48
Port-based security by locked MAC addresses	Yes
Dynamic ARP inspection	Yes
Broadcast, unicast, multicast DoS protection	Yes
DoS attacks prevention	Yes
Network storm protection, DoS	Yes
Broadcast, unicast, multicast DoS protection	Yes
DoS attacks prevention	Yes
Quality of Service (QoS)	
Port-based rate limiting	Yes ingress and egress
Port-based QoS	Yes
Support for IPv6 fields	Yes
DiffServ QoS	Yes ingress
IEEE 802.1p COS	Yes
Destination MAC and IP	Yes
IPv4 and v6 DSCP	Yes
TCP/UDP-based	Yes
Weighted Round Robin (WRR)	Yes
Strict priority queue technology	Yes

IEEE Network Protocols	**S7500-24GE4TF-L3M**
• IEEE 802.3 Ethernet	• IEEE 802.3x Full-Duplex Flow Control
• IEEE 802.3u 100BASE-T	• IEEE 802.1Q VLAN Tagging
• IEEE 802.3ab 1000BASE-T	• IEEE 802.1AB LLDP with ANSI/TIA-1057 (LLDP-MED)
• IEEE 802.3z 1000BASE-SX/LX	• IEEE 802.1p Class of Service
• IEEE 802.3bz 1000BASE-T	• IEEE 802.1D Spanning Tree (STP)
• IEEE 802.3ae 1000BASE-T	• IEEE 802.1s Multiple Spanning Tree (MSTP)
• IEEE 802.3az Energy Efficient Ethernet (EEE)	• IEEE 802.1w Rapid Spanning Tree (RSTP)
• IEEE 802.3ad Trunking (LACP)	• IEEE 802.1x RADIUS Network Access Control
Management, Monitoring & Troubleshooting	
Password management	Yes
Admin access control via RADIUS and TACACS+	Yes
IPv6 management	Yes
SNMP v1/v2c/v3	Yes
RMON group 1,2,3,9	Yes
Port mirroring	Yes ingress and egress
Many-to-one port mirroring	28
Cable test utility	Yes
TLS/HTTPS Web-based access (version)	Yes (v1.2)
File transfers (uploads, downloads)	TFTP / HTTP
HTTP upload/download (firmware)	Yes
Syslog (RFC 3164)	Yes
USB port for firmware and config upload/ download	Yes
LEDs	Yes
Per port	Speed, Link, Activity; or in different mode
Per device	Power, system
Physical Specifications	Yes
Dimensions	440 x 290 x 44.5 mm (17.32 x 11.42 x 1.75 in)
Weight	2.6 kg (5.72lb)
Iddle power consumption (all ports link-down standby) (Watts)	24W
Energy Efficient Ethernet (EEE) IEEE 802.3az	Yes (deactivated by default)
Fan	2

Environmental Specifications	**S7500-24GE4TF-L3M**
Operating	
Operating Temperature	-20° to 50°C (-4° to 122°F)
Humidity	90% maximum relative humidity (RH), non-condensing
Altitude	10,000 ft (3,000 m) maximum
Storage	
Storage Temperature	–30° to 70°C (– 22° to 158°F)
Humidity (relative)	95% maximum relative humidity, non-condensing
Altitude	10,000 ft (3,000 m) maximum
Electromagnetic Emissions and Immunity	
Certifications	CE mark, commercial FCC Part 15 Class A, VCCI Class A Class A EN 55022 (CISPR 22) Class A Class A C-Tick EN 55024 CCC 47 CFR FCC Part 15, SubpartB, Class A ICES-003: 2016 Issue 6, Class A ANSI C63.4:2014 IEC 60950-1:2005 (ed.2)+A1:2009+A2:2013 AN/NZS CISPR 22:2009+A1:2010 CLASS A
Safety	
Certifications	CB mark, commercial CSA certified (CSA 22.2 #950) EN 60950-1: 2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013 IEC 60950-1:2005 (ed.2)+A1:2009+A2:2013 AN/NZS 60950.1:2015 CCC (China Compulsory Certificate)
Warranty and Support	
Hardware Limited Warranty	Limited Lifetime*
Technical Support via Phone and Email*	Limited Lifetime*
Limited Lifetime* 24x7 Online Chat Technical Support	Limited Lifetime*
Package Contents	
All models	Smart Switch AC Power cord with C13 connector (localized to region of sale) Brackets and screws for rack mounting Rubber protection caps, which are already installed in the SFP sockets Installation guide

Shenzhen Benchu Group Technology Limited
5F,Block5,GuangmingGu Industrial Park,Matian Villiage,
Guangming Disitrict,Shenzhen,China
Tel:+86-755 23246531 Email: sales@benchu-group.com
www.benchu-group.com